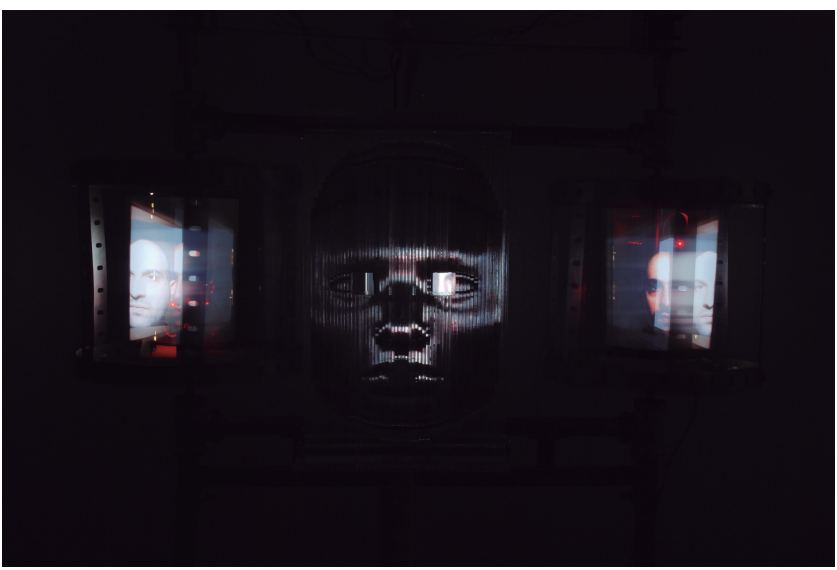

Photograph of *Diplorasis*
Nicosia, 2016, George Themistokleous

image as a virtual construction

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The shift in visual technologies from the early twentieth century understandings of interior vs. exterior and subject vs. object are radically different when compared to contemporary architectural media and the immersive environments that they suggest. The rethinking of the photographic medium as a digital construct can reveal its virtual potentials as an 'architecture' in and of itself. The digital technologies used in the custom-made optical device, the diplorasis, allow for a re-thinking of both architectural and photographic discourses, as they reveal their tendencies to converge with one another. This is important today because vision, and hence the body, is increasingly embedded within media environments. The self is multiplied within virtual domains that in turn affect the actual space of the corporeal body. In this respect, it is crucial to think how time-based media re-present our spatial environments and how this virtuality shifts the locus of the body and its limits to produce new understandings of interior/exterior, subject/object.

keywords Digital photography, Virtual environments

introduction

For a long time now the knowledge and dissemination of architecture has been mediated by photography, and we have come to take for granted the relationship between architecture and its photographic representations. In the early twentieth century the photographic medium played an instrumental role in constructing modern architecture. The first part of the paper aims to explore multiple and often-diverging interpretations of the photographic image, revealing a more nuanced understanding of photography and the implied space that it suggests. It becomes critical to revise photography in relation to two other devices, the camera obscura and the stereoscope, in order to consider how it is linked to both a classical and a modern observer respectively. The limitations of photography, its inability to capture motion and its analogy to a monocular space are overcome through its relation between multiple photographs in other devices such as the stereoscope. This aspect of the photograph however might be further developed due to the shift in its constitution, from photographic film to electronic photo detectors that are stored as pixels. Digital photography became commercially available in the early 1990s and since then the image processing capabilities of digital media are rapidly developing.

In the second part of this paper, I will utilize a custom-made experimental optical device of my own making, the *diplorasis*, to consider the changing role of the image within digital media. The *diplorasis* extends the possibility of image overlapping of the stereoscope. In the *diplorasis* it is not only diverging and converging images that are overlapped, but also a sequence of images (controlled via programmable algorithms). The *diplorasis* presents the viewer with stereographic photographs of themselves taken as they walk towards the device. The digital projection of the stereoscopic pairing, taken at instances when the viewer was unaware that they were being photographed, is relayed back into the device. In the *diplorasis*, the spatial and image-producing discourses are intertwined to the point of becoming indistinct. The photographic device becomes staged and synchronized to respond to the expected shot and later the photographic image itself becomes processed and re-composed.

photography and modern architecture

In *Privacy and Publicity: Modern Architecture as Mass Media* (1994), architectural historian Beatriz Colomina, as the sub-heading attests, argues that the "emerging systems of communication that came to define twentieth-century culture –the mass media– are the true site [sic] within which modern architecture is produced and with which it directly engages"[1]. Photography became one of the primary means of communication for shaping modern architecture through the speed and relative ease of its production, its unprecedented dissemination in print media and the ability for it to be easily apprehended by a wider audience, as opposed to the architectural drawing that was far less accessible to those not familiar with its codes. For Colomina, the traditional notion of the building as an object that is distinct from a subject is destabilized by the proliferation of media and systems of communication. The modern notion of the object, with its increasing representations through media, multiplies the boundaries between inside and outside[2]. What role does the corporeal body play in this shift? Colomina describes the modern viewer by partly quoting Le Corbusier: "Modern eyes move. Vision in Le Corbusier's architecture is always tied to movement: 'You follow an itinerary,' a *promenade architecturale*"[3]. The photographic representations, of Le Corbusier's Villa Savoye (1929-31) for example, imply that a viewer is walking through a space that frames particular views, bringing certain architectural elements to the fore (pilotis, roof garden, strip window). The eye-level shots indirectly refer to this observer that is meant to experientially move through a sequence of spaces. Bodies themselves are mostly

absent from the photographs; the body that is of prime importance here is behind the lens. The implied observer is thus de-corporealized and the medium of the photograph is removed from the sensory field of the observer. Representations of the embodied viewer's visual perception therefore indirectly blur the boundary between the more distinct notions of interior and exterior that in turn refers to a more distinct separation between subject and object.

In the opening of the chapter entitled "Photography", Colomina utilizes not photography but a film, *Man with a Moving Camera* (1929) by Dziga Vertov, in order to develop this blurring of boundaries between subject and object, interior and exterior. Particularly, she refers to the scene where the human eye appears over the lens. This moment she says, indicates "the point at which the camera dissociates itself from a classical and humanist episteme"[4]. Colomina also makes the following remark that is in need of further scrutiny, 'The traditional definition of photography, 'a transparent presentation of a real scene,' is implicit in the diagram instituted by the analogical model of the *camera obscura*- a model that would pretend to present to the subject the faithful 'reproduction' of a reality outside itself"[5]. Hence this reality is outside the subject, as opposed to the lens in Vertov's film which in this case becomes a "mirror, approaching the camera, the first thing the eye sees is its own reflected image"[6]. Colomina attempts another definition of photography, one where the "diffusion of photography coincides with the development of psychoanalysis " as "both photography and the unconscious presuppose a new spatial model in which interior and exterior are no longer clear-cut divisions"[7]. This moment in the passage, however, hinges at a dual and conflicting aspect of the photographic medium itself. It is worth to further explore this vexed notion of photography, by tracing the historical context of the observer at the time of its creation in the nineteenth century.

Jonathan Crary in *Techniques of the Observer* (1990) provides an account of optical devices primarily from the eighteenth and nineteenth centuries, making clear the crossover between these technologies of vision and their effect in shaping an observer. According to Crary, these technologies of vision inscribe wider social, philosophical and scientific developments onto the body of the observer. Crary seeks to emphasize the discontinuity between the observer in the early nineteenth century and the observer that came before this period. The stereoscope and the *camera obscura* are the main visual devices that represent the modern and the classical observer respectively. Photography, a device that was also invented in the early nineteenth century, has a much less precise position to play in relation to the observer in Crary's argument; he writes that the photographic medium "preserved an ambivalent and superficial relation to the codes of monocular space and geometrical perspective..."[8]. In one respect, photography maintained the monocular geometrical space implicit within the structure of linear perspective. The binocular physiology of the eyes –its topography of operation– is removed from the photographic setup and from the optical scientific discoveries that were being developed at the same time as the invention of photography. These discoveries outlined by Crary, such as the precise measurements of optical axes, produced new knowledge of the body, making it a contested area of both control and experimentation. The stereoscope is one such device that is an outcome of these optical experiments. The singular photographic image on the other hand represents a fixed geometrical monocular space, in its singularity it thus sustains a predefined relationship between subject and object; this is the traditional definition of photography. The ambivalence that Crary mentions partly occurs when the photographic image is re-thought as a multiplicity and through its integration with other devices, including the stereoscope, and partly in relation to its *process* - the exposure on film. In order to think of the material construct of the photograph it becomes pertinent to refer to the *camera obscura* and to consider how photography both converges and diverges from it.

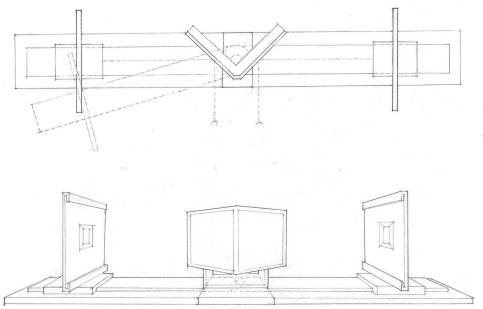
The *camera obscura* is a device where "an external image, projected through a small orifice into a dark chamber, was created as in the eye"[9]. The observer is independent from the projection of the image. According to Crary this device gained prominence in the seventeenth and eighteenth century and reflected the separation of bodily visual perception from a represented space. In other words the represented image was taken to represent a higher truth that was disconnected from the bodily senses, establishing an objective reality of a geometrical world. Photography extends the principle of the *camera obscura* by reproducing the image on a sensitized surface through emulsive film that captures light via the controlled opening of the lens. "All sensory experience occurs on a single immanent plane"[10]. Its ability to reproduce the plane on this surface challenges the assumed division between observer and image that occurs within the *camera obscura*. And it is for photography's method of capturing a transient image, its capabilities of enlargement and reproducibility that Colomina will highlight its integral relation in the forming of a modern observer.

Instead, its limitations are revealed by the static nature of the singular photographic image, as already mentioned, and its inability to capture motion, especially when compared to the cinematic image. Art historian Philippe-Alain Michaud writes: "with the reduced time necessary for the pose, photography fixed the image of a body displacing itself in space by highlighting a finite segment of the curve of its displacement; in capturing the appearance of mobility, not motion, photography had pushed movement out of the medium and gotten rid of it"[11]. And more importantly in the context of this paper, Gilles Deleuze will compare photography to painting: "In this case, analogy is figurative, and resemblance remains primary in principle. The photograph can rarely escape this limit, despite all its ambitions"[12].

If the photograph is positioned between two antithetical tendencies –between a classical and a modern observer then it is worth to rethink how the shift to digital photography produces another understanding of the image and the observer. Here the relational aspect of the photograph in the stereoscope and the digitalization of the photographic surface might begin to reveal the image as a virtual construction. This integration of optical devices and digital media that manipulate the photographic image will be explored through a custom-made optical device, the *diplorasis*. The *diplorasis* appropriates Wheatstone's stereoscope in conjunction to the digital image in order to produce a digital stereoscope.

towards a digital stereoscope

Sir Charles Wheatstone invented his stereoscope in the 1830s. The Wheatstone stereoscope uses mirrors to create a simulated illusion of three-dimensional space, through the projection of two-dimensional images. These images consist of a photographic pair of two slightly dissimilar photographs; in other words, the framed object is photographed from diverging angles. These images are then projected onto the two mirrors inside the stereoscope. Each eye faces one mirrored plane reflecting each image placed on either side. The eyes are framed so that peripheral vision is restricted and each eye focuses directly on the mirror in front of it. The two [monocular] eyes receive the two projected images separately and the eyes' coalescence forms the stereoscopic image. The stereoscopic paired images are perceived as receding planes that diverge, and once both framed eyes focus on similar points in the two images, the receding planes begin to somewhat align. The fixed images are thus animated and create an illusion of depth due to the anatomy of the framed binocular eyes in conjunction to the technical stereoscopic setup. The photographic pair in the traditional stereoscope remains fixed, yet the immanent field reproduced within the stereoscopic image might be further explored with the advent of digital image processin



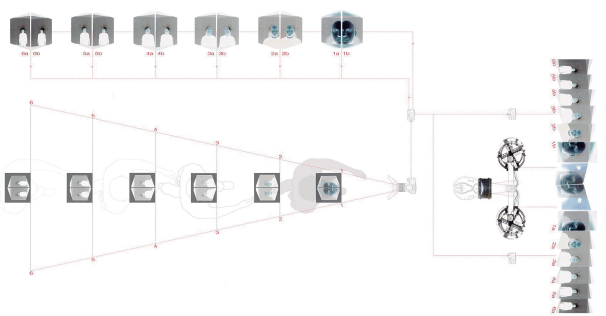
f2_Drawing
plan and perspective of Wheatstone stereoscope , 2016, George Themistokleous

The *diplorasis* is a device that digitalizes the Wheatstone stereoscope. It does this by employing digital processes that capture the image of the moving observer and then project and manipulate the images onto LCD screens in 'real' time. The device is placed at the far end of a long dark corridor, behind a translucent screen accentuating only the receptacle for the head of the viewer. This cavity, an inverse of a human bust, has framed eye openings that face the mirrors positioned behind the screen. As the viewer enters the corridor s/he will observe the screen light emitting from the eye openings. Whilst approaching the light source, he/she is unaware that s/he is being photographed by a DSLR camera. Attached to the camera is a stereoscopic lens, which produces a stereoscopic paired image that is programmed to split the image and then send it to LCD screens placed inside the drum via wireless transmission. Each screen on either side of the mirrors projects one of the two dissimilar images. The projected images seen through this stereoscopic projection is of his/her own body digitally stitched and looped backwards. In other words, one perceives oneself in three-dimensions and walking backwards in the same room, the same route that he/she traversed moments before. The actual progression of the simulated machine operation projects a rewinding. As the projected body stills revolve they become digitally misaligned and manipulated. As a consequence the digital stitching of the body becomes tampered. This reduplicated, projected and three-dimensionally simulated self begins to question the interrelation between the self as object and the self as image. For the duration of the visual experience the bodily observer confronts and constructs (through the stereoscopic operation) himself/herself as image. The re-presented image within this digital stereoscope creates a resemblance unlike the direct analogy produced in traditional photography. Instead the reproduced image is more similar to what Deleuze describes as a "resemblance then emerges as the brutal product of nonresembling means"[13].

The constitution of digital photography, its structure as a pixelated field –allows each unit to be manipulated through algorithms. The very temporal process of the traditional photographic image at the moment when light is inscribed onto a surface can now be further extended and constantly manipulated. In the stereoscope this immanent field can be made to converge and diverge –providing a limitless field of possibilities.

The *diplorasis* re-organizes the body of the observer by photographing it from different positions, angles and distances; it then electronically re-combines these images through algorithms that process the image and wireless transmission that send the image to

the stereoscopic setup. The visual perception of the image is informed by on the one hand by the digital, the field of digits, pixels on an electronic surface that are potentially changeable, and on the other by the sensation of the binocular eyes that visually reproduce the image. The analogue is thus reproduced by the integration between the digital constitution of the image and its possible movement. The movement here occurs in two ways: the sensory movement of the binocular eyes within the stereoscopic frame and the digital movement of electronically manipulated pixels. The projected image will be the figure of the observer congruently stitched according to an algorithmic logic. What structures the image, giving it a sort of armature, is the fact that the two images within the stereoscope must have some aligned points to allow for the 'illusory' sense of planar depth to emerge. The field of the image converges around these non-changing datum points. The space around the armature becomes inchoate, ready to absorb potential change and suggest motion. This is what appropriating the 'non-resembling means' that constitute the image would mean in this case.



f3_Diagram of *diplorasis* operation
plan view, Nicosia, 2016, George Themistokleous

Therefore it becomes important to emphasize that this armature synthesizes the digital photographic image and makes it into an image in depth. These receding planes thus offer momentarily immanent planes that -according to the eyes' functioning and focus- construct an image of the observer. The body's reconstitution, through an algorithmic process, is what generates the tension between the stable elements –the armature and the undulating points that distort the body. Therefore the observer's projected body image is split or disfigured and then re-configured around these points. The field of the image is thus composed of two parts: the armature consisting of the common converging points and the fluctuating zone around these points that consist of the represented body of the observer and its ensuing physical space. This represented body escapes its own structuring field only through the ruptures of the latter, the points where the stitching erupts to reveal a zone of a possibility. In one sense the image in the *diplorasis* follows the diagrammatic logic as articulated by Deleuze. If one starts from the figurative form –in the *diplorasis* this is the observer's body– "a diagram intervenes and scrambles it, and a form of a completely different nature emerges from the diagram, which is called Figure"[14]. Thus the diagram in the *diplorasis* operates between the digital field of the screen and the sensory perception of the framed eyes. The still frames of the photographed figure of the observer are reproduced as Figure. Thus the figuration occurs as a "consequence of the space" and at the same times "disrupt[s] this space and its consequences"[15].

The uncanny perception of one's body in the *diplorasis* demonstrates the increasing intertwinement between the body and its media environments. In relation to the modern observer discussed earlier the distinction between observer and image no longer applies. Instead we are rather positioned within a whole range of resemblances that question the relationship between the body and its (re)presentations. If in photography "the distinctions between interior and exterior, subject and object, are 'irrevocably blurred'"[16]. in the case of new media any distinction ceases to exist. It should be stressed that the meaning of interior in this case has also shifted, for technologies are increasingly being incorporated within the bodily schema. According to Georges Teyssot, "it is urgent to conceive of the (human) body in relation to these new means - these new media: digital, virtual - which have become unavoidable. Perhaps one should conceptualize them as a new means of transforming our manner of seeing and conceiving the world..."[17]. Therefore with more advanced technologies, the possibility to mediate the relation between the actual and the virtual and their "differentiation could be conceptually articulated".

The site for this new intervention[18], according to Teyssot becomes the body, and its 'prosthetic' limits. This individual subject, Teyssot writes, "according to Simondon (and Deleuze), is not a stable being, but the result of processes, operations, and forms - a confluence of differential energies between affects, percepts, and emotions (all traits of sensory experience versus intellection per se)"[19]. And if the body through its relation to these new media in the *diplorasis* is attuning for a new understanding of the bodily reception of the image, this interaction is very much associated to the wider networks of the body's ever-changing intertwinement with media. The Internet, social media, immersive digital environments and a wide range of interfaces already produce a manifold exchange of information. The role of the subject becomes multiplied within its various virtual domains –shifting the perception of the self. While these online environments are also sites of control (and this is not dealt with in this paper) they nonetheless create a rupture between on the one hand the body as image and on the other the increasingly changing aspect of the corporeal body, as the latter is already being redefined by its prosthetic technologies.

f4_Diagram of *diplorasis* operation
exploded axonometric view, Nicosia, 2016, George Themistokleous

conclusion

The photographic eye in modern architecture has been superseded by a machinic eye in an architecture of the body. The conflicting nature of the photographic image that both refers to a classical system of monocular space and at the same time is able to capture and disseminate a resemblance of the object allowing for a re-conceptualization of its imprint have given way to a re-thinking of the image through its digital constitution and its ability to be further intertwined with other devices and new media. These different phases of the photograph correspond to a shift in the relationship between subject and object, interior and exterior. Today one such interval, as Teyssot via Deleuze has mentioned, occurs at the limit of the corporeal body itself. The *diplorasis,* located at the interval between the eyes' physical functioning and the digitally projected re-constitution of one's body becomes a site where the tension between the body as image and the cognitive body are mediated through the application of digital media. In this case, photography becomes one medium that works in relation to others (stereoscope, digital media) and to itself.

Yet in Jean Baudrillard's writing on photography we encounter another interpretation of the photographic image. He writes, "Hence photography's affinity with everything that is savage and primitive, and with the most essential of exoticisms, the exoticism of the Object, of the Other"[20] and the savage who "is always confronting death", achieves to "transform this technical operation into a face-to-face confrontation with death". The savage[21] in this case according to Baudrillard is "savagely foreign to himself", as "he has no reflection" no "self-image or self consciousness"[22]. Baudrillard stresses the photograph's ability to capture a psychological state rather than its inability to capture motion or duration. For him the photograph is the medium that best captures the savage as a subject that is "free a priori of psychology"[23]. This account uncovers another dimension of the photographic image and is revealing due to the potency of the particular illumination of the 'Other'. When Deleuze describes the limitation of the photograph by claiming that "analogy is figurative, and resemblance remains primary in principle"[24], the analogy to the figurative had a clear referent; it is a photograph of -and by- a self-conscious subject, not a savage. That is what makes Bacon's paintings so successful for Deleuze, they conjure an image of the 'Other'. In Baudrillard, the savage's confrontation with death in the photograph reveals the image of the 'Other' to a self-conscious subject. And after all, is there not a savage in all of us?

endnotes

1. Beatriz Colomina, Privacy and Publicity: Modern Architecture as Mass Media (Massachusetts: The MIT Press, 1994), 14.

2. Ibidem, 14.

3. Ibidem, 5.

4. Ibidem, 79.

5. Ibidem, 79.

6. Ibidem, 79.

7. Ibidem, 80, 81.

8. Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Massachusetts: The MIT Press, 1990), 127.

9. Alberto Perez-Gomez and Louise Pelletier, *Architectural Representation and the Perspective Hinge* (Massachusetts: The MIT Press, 2000), 281.

10. Jonathan Crary, *Techniques of the Observer*, 92.

11. Philippe-Alain Michaud, *Aby Warburg and the Image in Motion* (New York: Zone Books, 2004 [1998]), 47.

12. Gilles Deleuze, *Francis Bacon: The Logic of Sensation* (London: Bloomsbury, 2005 [1981]), 81.

13. Ibidem, 81.

14. Ibidem, 109.

15. Ibidem, 109.

16. Colomina, *Privacy and Publicity*, 82.

17. Georges Teyssot, "Parasites and Prosthetics", *A Topology of Everyday Constellations* (Cambridge, MA: The MIT Press, 2013), 246.

18. Ibidem, 248.

19. Teyssot, "Windows and Screens", 273.

20. Jean Baudrillard, *The Transparency of Evil: Essays on Extreme Phenomena* (London: Verso Books, 1993 [1990]), 172.

21. Ibidem, 172.

22. Ibidem, 173.

23. Ibidem, 173.

24. Deleuze, *Francis Bacon*, 81.

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CV

George Themistokleous. Is a lecturer in Architectural History and Theory and Architectural Design at Leeds Beckett University. His doctoral research considers the limitations of current architectural representational methods in relation to a re-thinking of bodily and machinic vision, through custom made optical devices and multimedia installations. Forthcoming publications include the book *This Thing Called Theory* (ed. with T. Stoppani and G. Ponzo) and the book chapters "Digitally Stitching Stereoscopic Vision" in *Visual Methodologies in Architecture* (eds. I. Troiani and S. Ewing) and "Mediating the Interval" in *Image Temporality: The Relation of Time, Space and Reception of Visual Media, Yearbook of the Moving Image - YoMIS* (eds. L. C. Grabbe, P. Rubert-Kruse, N. M. Schmitz) . His project "diplorasis: the other side of vision" will be presented in the Acadia 2016 exhibition *Posthuman Frontiers: Data, Designers and Cognitive Machines*.